

What is claimed is:

1. A magnetic sensor arrangement, having

- magnetically sensitive sensor elements (7, 8) whose electrical properties are changeable as a function of a magnetic field that a moving, passive transmitter element (11) is able to influence,

wherein

- the magnetic sensor arrangement (1) has two sensor elements (7, 8) in a gradiometer arrangement that are each respectively associated with one of two regions (4, 5) of a permanent magnet embodied in the form of a gap magnet (2), which regions are spaced apart from each other by a predetermined distance (sa),
- the magnetic regions (4, 5) and the permanent gap magnet (2; 20) – in terms of the dimensions (h, b, t), the gap width (sa), the gap depth (st), and their positions in relation to the sensor elements (7, 8) – are situated so as to minimize the offset of the output signal of the sensor elements (7, 8) in the gradiometer arrangement.

2. The magnetic sensor arrangement as recited in claim 1,

wherein

- the gap (21) has a contour with a wedge-shaped narrowing in the direction of the gap depth (st) of the permanent gap magnet (20; 23).

3. The magnetic sensor arrangement as recited in claim 1,

wherein

- the gap of the permanent gap magnet (2) has a rectangular contour.

4. The magnetic sensor arrangement as recited in claim 1,

wherein

- the gap has a predetermined curved contour in the direction of the gap depth (st) of the permanent gap magnet.

5. The magnetic sensor arrangement as recited in one of the preceding claims,
wherein

- 5 – flux-conducting plates (9, 10) are positioned between the sensor elements (7, 8) and the magnetic regions (4, 5).

6. The magnetic sensor arrangement as recited in claim 5,
wherein

- 10 – the flux-conducting plate (24) is embodied in the form of a compact element into which the gap (21) is integrated.

7. The magnetic sensor arrangement as recited in one of the preceding claims,

15 wherein

- the magnetization of the regions (4, 5) is rotated by a predetermined angle (α) away from its longitudinal direction oriented toward the sensor elements (7, 8).

8. The magnetic sensor arrangement as recited in one of the preceding claims,

20 wherein

- the magnetic sensor arrangement (1) is used to detect the rotation angle of a wheel (11) serving as the transmitter element, and the circumference of the wheel (11) is provided with teeth (12) in order to influence the magnetic field in
25 the region of the magnetic sensor arrangement (1).

9. The magnetic sensor arrangement as recited in claim 8,
wherein

- the wheel (11) is embodied in the form of a steel wheel.

10. The magnetic sensor arrangement as recited in one of the preceding claims,

wherein

– the sensor elements (7, 8) are magnetoresistive XMR sensors.